



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/849,746 09/05/97 LOHER

U LUDE14.313

IM62/1215

HELFGOTT & KARAS
EMPIRE STATE BUILDING
SUITE 6024
NEW YORK NY 10118

EXAMINER

STAIKOVICI, S

ART UNIT

PAPER NUMBER

1732

15

DATE MAILED:

12/15/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/894,746

Applicant(s)

Urs Lohr et al.

Examiner
Stefan Stalcovici, Ph.D.

Group Art Unit
1732



☒ Responsive to communication(s) filed on Aug 31, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-26 is/are pending in the application

Of the above, claim(s) 17-26 is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-16 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Art Unit: 1732

DETAILED ACTION

Amendment

1. Applicants' amendment filed August 31, 1999 (Paper No.14) has been entered. It should be noted that Applicant's amendments filed March 29, 1999 (Paper No. 10) and June 29, 1999 (Paper No. 12) have not been entered due to the reasons set forth in the communications mailed to Applicants on June 15, 1999 (Paper No. 11) and respectively, August 25, 1999 (Paper No. 13).

Claims 1-16 have been amended. No new claims have been added. No claims have been canceled. Claims 1-26 are pending in the instant application.

Specification

2. The amendment filed August 31, 1999 (Paper No. 14) is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

✓ - the insertion of "axially pressing" on page 5, line 35, and "axially pressed" on page 14, line 29 and page 17, line 11. Although the original disclosure does have support for a "push-pull extrusion process," the original disclosure does not have support for the broader concept of "axial pressing". -

✓ the replacement of the concept of "extrusion" with the broader concept of "processing" throughout the instant disclosure does not appear to have support in the original disclosure. 7

Applicant is required to cancel the new matter in the reply to this Office action.

Art Unit: 1732

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- ✓ 4. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claims 1 and 2, the limitation of “*axially* pressed” (emphasis added) does not appear to have support in the original disclosure. Although the original disclosure does have support for a “push-pull extrusion” process, the original disclosure does not have support for an “*axially* pressed” (emphasis added) process. Claims 3-16 are rejected as dependent claims.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- ✓ 6. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- ✓ In claim 4, line 3, after “component”, it is suggested to delete “are used”.

Art Unit: 1732

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1, 3-8, 11-12, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gapp *et al.* (WO 91/02906).

Gapp *et al.* (WO 91/02906) teach the claimed process of manufacturing fiber reinforced thermoplastic components including, forming panels (36) from fiber reinforced thermoplastic material (PEEK), cutting a section (40) from the panel and machining said section (40) to form a machined blank (52) having a head end (54), a shank portion (56) and a tail end (58) (pre-finished blank) (see Figures 1, 4a, 4b), positioning said machined blank (52) in a die having a shank die (100), a head die (102), an upset die (104) and a thread die (120), heating said head end (54) to a temperature sufficient to allow deformation and compressing said blank axially using upper ram (116) so as to deform said heated blank head end (54). Further, Gapp *et al.* (WO 91/02906) teach applying heat and pressure to form a threaded rod (60) (see Figure 8) after the lower ram (132) has forced the blank tail end (58) upwards (axially) so as to deform said blank tail portion (58) into the thread forming cavity (134).

Regarding claim 3, Gapp *et al.* (WO 91/02906) teach forming panels (36) from fiber reinforced thermoplastic material (PEEK), cutting a section (40) from the panel and machining said

Art Unit: 1732

section (40) to form a machined blank (52) having a head end (54), a shank portion (56) and a tail end (58) (pre-finished blank) (see Figures 1, 4a, 4b).

In regard to claim 4, Gapp *et al.* (WO 91/02906) teach the use of continuous fibers having the same length as the resulting molded article (see Figures 1 and 6).

Specifically regarding claims 5-6 and 12, Gapp *et al.* (WO 91/02906) teach that the panel from which the blanks are cut are formed from a plurality of layers (more than one laminate) having fibers oriented in different directions (see page 7, lines 1-10), such as to form a "0/+45/-45/90" layup.

Regarding claim 7, Gapp *et al.* (WO 91/02906) teach axial compression from two directions using upper ram (116) and lower ram (132), hence Gapp *et al.* (WO 91/02906) teach a push-pull process.

In regard to claim 8, Gapp *et al.* (WO 91/02906) teach heating the blank to a temperature of 725 °F (385 °C) and then under pressure, cooling the shaped blank until a temperature of 400 °F (204 °C).

Specifically regarding claim 11, Gapp *et al.* (WO 91/02906) teach a fiber reinforced thermoplastic article having fibers parallel to the longitudinal axis (see Figure 6).

Regarding claim 14, Gapp *et al.* (WO 91/02906) teach forming panels (36) from carbon fiber reinforced thermoplastic material (PEEK), whereas the fiber is surrounded by the thermoplastic polymeric material which acts a binder. Further, since the material is processed by heat and pressure, such that the thermoplastic material melts, it is submitted that said molten thermoplastic material surrounds the blank during the compression step.

Art Unit: 1732

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 9-10, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gapp *et al.* (WO 91/02906).

Gapp *et al.* (WO 91/02906) teach the basic claimed process as shown above.

Regarding claim 2, Gapp *et al.* (WO 91/02906) do not teach a fiber proportion of more than 50% by volume. However, fiber reinforced thermoplastic materials having a proportion of fiber more than 50% by volume is well known in the art. It would have been obvious for one of ordinary skill in the art at the time of the invention to have provided a fiber reinforced thermoplastic materials having a proportion of fiber more than 50% by volume in the process of Gapp *et al.* (WO 91/02906) due to well known advantages that an increased fiber volume provides such as, improved mechanical and chemical properties, improved fatigue properties, improved versatility of the resulting molded article, etc.

In regard to claim 9, Gapp *et al.* (WO 91/02906) do not teach the use of carbon or graphite as a release agent. However, the use of carbon or graphite as a release agent is well known in the art. It would have been obvious for one of ordinary skill in the art at the time of the invention to have used carbon or graphite as a release agent in the process of Gapp *et al.* (WO 91/02906) due to a

Art Unit: 1732

variety of unclaimed parameters such as cost considerations, material availability, simplicity and also because the process of Gapp *et al.* (WO 91/02906) uses carbon fiber reinforcements.

Specifically regarding claim 10, Gapp *et al.* (WO 91/02906) do not teach the use of polyaryletherketone (PAEK). However, the use of polyaryletherketone (PAEK) is well known in the art as an alternative to polyetheretherketone (PEEK). It would have been obvious for one of ordinary skill in the art at the time of the invention to have used polyaryletherketone (PAEK) as an alternative to polyetheretherketone (PEEK) in the process of Gapp *et al.* (WO 91/02906), due to a variety of unclaimed parameters such as cost considerations, material availability, simplicity and also because the process of Gapp *et al.* (WO 91/02906) does not limit itself only to polyetheretherketone (PEEK).

Regarding claim 13, although Gapp *et al.* (WO 91/02906) do not teach the use of fibers having a length of mm, carbon fibers having a length of at least mm are well known in the art. It would have been obvious for one of ordinary skill in the art at the time of the invention to have used carbon fibers having a length of at least of mm in the process of Gapp *et al.* (WO 91/02906), due to a variety of unclaimed parameters such as cost considerations, material availability, desired length of the final product, desired characteristics of the final product, etc. Furthermore, it should be noted that since Gapp *et al.* (WO 91/02906) teach the use of continuous fibers having the same length as the resulting molded article (see Figures 1 and 6), and since fasteners longer than 3 mm are well known in the art, it would have been obvious for one of ordinary skill in the art to have provided carbon fibers having a length of at least of mm in the process of Gapp *et al.* (WO 91/02906) to manufacture fasteners longer than 3 mm, due to a variety of unclaimed parameters such as cost

Art Unit: 1732

considerations, material availability, desired length of the final product, desired characteristics of the final product, etc.

Specifically regarding claim 15, Gapp *et al.* (WO 91/02906) teach controlling the temperature of the die as a process control parameter to adjust the orientation of the fibers. Although, Gapp *et al.* (WO 91/02906) do not specifically teach the pressing speed as a process variable, it should be noted that the pressing speed is a conventional variable in molding processes which is routinely adjusted for the purpose of positioning and aligning fibers based on the type of resin and fiber employed. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to have used routine optimization in the process of Gapp *et al.* (WO 91/02906) to determine an optimum pressing speed, due to a variety of unclaimed parameters such as the type of resin employed, the type of fibers employed, equipment availability, etc.

11. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gapp *et al.* (WO 91/02906) and in further view of DE 37 39 582 A1.

Gapp *et al.* (WO 91/02906) teach the basic claimed process as shown above.

Regarding claim 16, Gapp *et al.* (WO 91/02906) do not teach applying a surface seal. DE 37 39 582 A1 teach a process of coating a molten plastic material by applying a carbon coating to a mold surface, injecting a molten plastic material inside the mold, and depositing said coating onto said melt as the carbon coating comes into contact with the molten polymer. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to have provided a carbon coating on the mold surface as taught by DE 37 39 582 A1 in the process Gapp *et al.* (WO 91/02906) due to a variety of advantages that such a coating process provides such as, reduced

Art Unit: 1732

pollution, improved productivity, etc. and also because a carbon coated fastener provides for improved electrical characteristics.

Response to Amendment

12. Applicant's arguments filed August 31, 1999 (Paper No.14) have been fully considered but are moot in view of the new ground(s) of rejection.

13. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

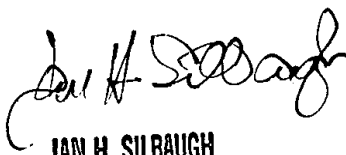
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 1732


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (703) 305-0396. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM and alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan H. Silbaugh, can be reached at (703) 308-3829. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.


JAN H. SILBAUGH
SUPERVISORY PATENT EXAMINER
ART UNIT 1732
12/13/00

December 11, 2000



Stefan Staicovici, PhD